

**Amendments to the Claims**

The following Listing Of Claims will replace all prior versions, and listings, of claims in the application.

## Listing Of Claims:

**Claim 1 (Canceled).**

**Claim 2 (Currently Amended):** An optical element comprising:

a base having a reflecting surface to be illuminated by light, and a rear surface opposite to the reflecting surface, wherein ~~a hole is formed in~~ the rear surface is defined by a cut-out portion; and

a cooling mechanism, ~~located in~~ accommodated by the cut-out portion ~~hole~~, for cooling said base through radiation in a non-contact manner.

**Claim 3 (Currently Amended):** An optical element according to claim 2, wherein the reflecting surface has an area to be illuminated, and the cut-out portion ~~hole~~ is located opposite to the area on the reflecting surface.

**Claim 4 (Currently Amended):** An optical element according to claim 2, wherein said cooling mechanism includes:

a radiation plate accommodated by ~~provided in the cut-out portion~~ ~~the hole~~; and

a Peltier element that cools the radiation plate.

**Claim 5 (Original):** An optical element according to claim 4, wherein said cooling mechanism has a channel for coolant to flow, and further includes a cooling jacket for recovering heat from the Peltier element.

**Claim 6 (Currently Amended):** An optical element according to claim 2, wherein said cooling mechanism further includes a heat insulator for preventing the base from absorbing heat obtained by the cut-out portion ~~hole~~.

**Claim 7 (Currently Amended):** An optical element according to claim 2, wherein the rear surface is defined by the cut-out portion and another cut-out portion ~~base has a concave part provided~~ at a position different from that of the cut-out portion ~~hole in a non-illuminated area~~.

**Claim 8 (Currently Amended):** An optical element according to claim 7, wherein the other cut-out portion ~~concave part~~ is opposite to the non-illuminated area on the reflecting surface.

**Claim 9 (Canceled).**

**Claim 10 (Currently Amended):** An optical element according to claim 3, wherein the cut-out portion ~~hole~~ has a shape that changes according to temperature distributions on the reflecting surface.

**Claim 11 (Previously Presented):** An optical element according to claim 3, wherein the cooling mechanism changes cooling power based on a position according to temperature distributions on the reflecting surface.

**Claim 12 (Original):** An optical element according to claim 2, further comprising a mirror.

**Claim 13 (Original):** An optical element according to claim 2, further comprising:  
a detector for detecting a temperature of said base; and  
a controller for controlling said cooling mechanism so that the temperature of said base detected by said detector becomes a predetermined value.

**Claim 14 (Canceled).**

**Claim 15 (Currently Amended):** An exposure apparatus comprising an optical system for exposing a pattern formed on a mask or a reticle onto an object, wherein said optical system includes an optical element, and the optical element includes a base having a reflecting surface to be illuminated by light, and a rear surface opposite to the reflecting surface, wherein a ~~hole is formed in the rear surface~~ is defined by a cut-out portion, and a cooling mechanism, ~~located in~~ accommodated by the cut-out portion ~~hole~~, for cooling said base through radiation in a non-contact manner.

**Claim 16 (Canceled).**

**Claim 17 (Currently Amended):** A device fabricating method comprising the steps of:

exposing a pattern on a mask or a reticle onto an object using an exposure apparatus that includes an optical system, wherein said optical system includes an optical element, and the optical element includes a base having a reflecting surface to be illuminated by light, and a rear surface opposite to the reflecting surface, wherein a ~~hole is formed in the rear surface~~ is defined by a cut-out portion, and a cooling mechanism, ~~located in~~ accommodated by the cut-out portion ~~hole~~, for cooling said base through radiation in a non-contact manner; and

developing the exposed object.

**Claim 18 (Canceled).**